NORBERT DEE, Ph. D.
Director, Environmental Affairs

October 31, 2001

Mr. James L. Connaughton
Chairman, Council on Environmental Quality
Executive Office of the President
17th and G Streets, NW
Washington, DC 20503

Re: Attention Task Force

Dear Mr. Connaughton:

The National Petrochemical & Refiners Association (NPRA) appreciates the opportunity to comment on the proposed nature and scope of the Interagency Energy Task Force ("Task Force") efforts to streamline energy permitting decisions. (66 *FR161* 43586, August 20, 2001). NPRA welcomes the Administration's decision to review what we believe is a strong case for improving the permit-decision making process for energy-related projects.

The National Petrochemical & Refiners Association (NPRA) represents almost 500 companies, including virtually all US refiners and petrochemical manufacturers. Our members supply consumers with a wide variety of products and services that are used daily in homes and businesses.

Reliable and adequate supplies of gasoline, diesel fuel, jet fuel, and other petroleum products are essential for both economic growth and energy security. U.S. refineries have been operating at or near maximum levels for several years --- 95 percent of capacity or higher. To meet demand in the future, we will have to sustain high levels of operation, while trying to enhance domestic refining capacity. Thus, it is critical that the permitting process include and reflect a rational and effective New Source Review (NSR) program.

The Current NSR Program Impedes Energy and Environmental Progress

Refining operations are continuous and complex. They depend on the simultaneous operation of many individual, but inter-related, pieces of equipment ("units"). A NSR permitting delay or inability to change or improve operations of a single unit can have a significant cumulative impact on the refinery's ability to produce fuels.

Uncertainties about NSR interpretations and therefore whether a permit is required and what processes should be included in the permit have often placed our members in a state of retroactive "enforcement jeopardy" while adding considerable delay and cost to refinery projects. These uncertainties and delays will constrain the industry's ability to (1) expand domestic refining capacity, (2) increase the supply of cleaner burning fuels, and (3) enhance energy efficiency.

Problems With The Existing NSR Program Must Be Corrected

The most important action that this Administration can take to streamline permitting for the petroleum refining industry is to clarify and improve the existing NSR program. Issues that must be addressed include: the interpretation of what constitutes routine repair and maintenance, the use of the "actual to potential" test that can trigger permitting requirements when, in fact, there will be no increase in emissions; the misuse of the aggregation requirement and recent changes in the treatment of "debottlenecked and linked units".

A Flexible, Performance-Based Option Should Be Added to NSR

NPRA also believes that we should explore and incorporate measures to provide additional regulatory flexibility and streamline the permitting process. This can be done without jeopardizing environmental progress. Several state permitting programs (including Texas and New Jersey) provide flexibility features such as "cap and trade" programs. In addition, EPA's own recent settlement agreement with MarathonAshland provides for use of a PAL (plantwide applicability limit), which could provide flexibility depending on how key details of that program are developed.

NPRA believes that the concept of a facility emissions target rather than emissions limits on each of the many individual pieces of refinery equipment should be added to the NSR program. The policy goal of continued environmental progress can best be met through broad performance standards rather than technology mandates or narrowly defined emissions limits on each piece of equipment. Thus, NPRA urges that EPA also consider developing a voluntary alternative compliance mechanism based on a PAL-type approach.

The Attached Examples Show That Real Permitting Problems Exist

To demonstrate NSR's "real world" impact on energy projects and permitting our members have provided some concrete examples of refining projects affected by NSR-related uncertainties. Attachment 1 contains more than 30 examples in which recent NSR reinterpretations have had a chilling effect on desirable investments or added considerable delay and cost.

Attachment 2 summarizes additional, potential problems based on several case studies addressed by EPA representatives at a March, 2001 meeting sponsored by the Air and Waste Management Association.

We urge CEQ support administrative and regulatory revisions to the current NSR program as the most effective means to streamline energy permitting decisions for the Petroleum Refining Sector. Further, we believe that this reform must be initiated in a timely fashion in order to sustain economic growth and to maintain energy security.

If you have any questions, please contact me at 202-457-0480.

Sincerely,

Attachments

Attachment 1: New Source Review Examples

EXAMPLE	RESULTS OF CURRENT INTERPRETATION	IMPACT ON CLEAN FUELS, CAPACITY, AND ENERGY EFFICIENCY
1. A small refinery, located in an attainment area for all NAAQS, this year submitted a minor NSR permit application to implement a project key to its low sulfur fuels (gasoline and diesel) strategy. The facility has a historical under-utilization of heater and boiler capacity (i.e., actual firing rates have been well below design capacities due to various reasons, including the cyclical nature of hydrodesulfurization unit reactor charge heaters which increase firing as catalyst deactivates, and therefore are sized for end-of-run conditions).	The current NSR applicability procedure requiring the comparison of past actual to future potential emissions strongly encourages a "use it or lose it" mentality rather than an emissions reduction incentive. The facility had to accept voluntary restrictions on the operating capacity of an existing otherwise unaffected heater in order to avoid a complex PSD netting analysis and possibly PSD new source review permitting. Furthermore, the refinery was penalized for the over-control of refinery fuel gas H2S to about 1/10 of the NSPS Subpart J limit (or state-equivalent for non-NSPS combustion devices) by having to assume the full NSPS limit (i.e., the applicable standard) as the "post-project potential" SO2 emissions.	Restrictions place an artificial limit on the refinery's capacity to produce clean fuels.

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2. A large refinery was on a tight schedule to begin modifications to enable the production of federal reformulated gasoline and California Phase 2 reformulated gasoline. The first project would reduce total air pollutant emissions from the refinery, both on an overall mass basis and on a pollutant-by-pollutant basis, by increasing the efficiency of certain operations, removing older process units from service, and installing state-of-the-art emission controls. These reductions would improve air quality in the nonattainment area.	Agency delays in the environmental review process jeopardized the refinery's ability to meet regulatory deadlines for producing the reformulated gasoline. The local permitting agency reviewed and authorized site preparation and other activities the refinery undertook prior to actually receiving its NSR permit under the agency's SIP-approved permit rule and established agency guidance. EPA interpreted the local agency's rule differently, and issued a § 114 request followed by a notice of violation and a "stop work" order. The refinery obtained an extraordinary stay of EPA's administrative order from the U.S. Court of Appeals, and completed the project just in time, despite continued EPA threats to file a civil action for penalties. EPA overfiling and direct involvement in individual permits creates an atmosphere of uncertainty for both projects and state/local permit agencies.	The permitting uncertainty created by EPA's current interpretation of NSR, and the threat of EPA overfiling resulted in delay and the use of extraordinary measures and resources by the refinery to obtain a permit for clean fuels.
3. A small refiner is contemplating the installation of a distillate hydrotreater for low sulfur diesel fuel.	In order for the refiner to install the equipment that refines the "clean fuel," it is confronted with NSR permit constraints that may make a project that has built-in environmental benefits cost prohibitive to construct.	Foregone production of clean fuels.

Attachment 1: New Source Review Examples

4. In response to increased electricity costs, and to assure electrical supply during a period of deregulation and potential shortages, a western refinery filed a permit application to install 8 temporary diesel-fired electrical generators. These diesel-fired generators would be leased and operated for a period not to exceed 2 years within the existing refinery boundary. The generators would produce additional criteria pollutant emissions. Although the quantity of emissions would be in excess of the PSD "significant" levels, the increase in emissions would be temporary, and therefore did not constitute a "major modification" as defined by the PSD regulations.	Based on historical PSD applicability determinations, EPA has stated temporary operations of less than two years were not intended to be covered by PSD regulations (April 24, 1978 memo from W.C. Barber, Office of Air Quality Planning & Standards to Adlene Harrison, Regional Administrator, Region VI). Because of this historical applicability determination and other similar determinations, the State issued a non-PSD permit to the refinery for operation of the 8 temporary generators. EPA commented during the comment period, and indicated EPA was opposed to issuing the permit as a non-PSD permit and did not agree with the State required BACT determination, although during the appeal period EPA did not appeal the permit. Because EPA commented negatively during the comment period but did not appeal the permit during the appeal period, the refinery is concerned about EPA's enforcement interpretations. This regulatory uncertainty has resulted in the refinery considering not operating the temporary generators, thus sacrificing refinery reliability.	Regulatory uncertainty may cause a reliability project to be abandoned. Fuel supply could be impacted.

Attachment 1: New Source Review Examples

5. A refiner completed the installation of a relocated FCCU. The unit essentially debottlenecked the entire refinery, resulting in increased refining capacity. The state minor NSR permit netted the refinery out of PSD for all pollutants. Because of a recently discovered lab error in developing the historical baseline for actual SO2 emissions, those emissions were under-calculated. The resulting permit imposes a 15% actual-to-potential reduction in SO2 emissions for the entire refinery. The refinery cannot increase emissions without violating or changing the state minor NSR permit. Because the FCCU is challenging other units in the refinery at levels not seen before, and because new incremental crude oil supplies are of lesser quality, the facility is having problems with generating too much fuel gas which is increasing flaring potential, and too much sulfur in fuel gas which leads to greater potential for excess emissions. To stay in compliance without making additional changes to the refinery, the facility must run in a manner (i.e. - reduced runs and/or minimizing gasoline production) that does not optimize production or consumer supplies. This situation could be fixed by installing additional cooling, rerouting some gas streams around the compressor directly to heaters, and other changes that would reduce fuel gas production and optimize fuel gas sulfur removal.	Because of the uncertainty created by the current interpretation of NSR, the state insists on analyzing every corrective change for its PSD implications. Therefore, the facility is constrained from taking immediate action to solve the situation and is running a daily risk of excess emissions, and losing production capacity.	These steps would increase fuel production and improve environmental compliance.
6. After startup following a maintenance turnaround, a refiner found that fluid catalytic cracker (FCC) capacity was limited to a rate less than the pre-maintenance rate due to plugged feed nozzles. The facility devised a method of bypassing the plugged nozzles while continuing to operate the FCC unit.	Because the method, under current interpretation of NSR, would involve a physical change, the facility was concerned that the change would be viewed by EPA as a physical or operational change subject to New Source Review, and a decision was made to accept the limited capacity. Factored into this decision was the Agency's method of calculating emissions increase based on a comparison of pre-change actual emissions to post-change potential emissions.	Foregone increase in refinery capacity and fuel supply.

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7. This project would increase RFG production by approximately 10,000 - 12,000 barrels per day. This will involve changes to the Naphtha Stabilizer wherein product fractionation will be improved by reducing the vapor pressure of the light naphtha stream used in gasoline blending. The project involves the replacement of existing trays in the naphtha stabilizer with high efficiency trays to increase butane recovery from the light naphtha. In addition, a new reboiler will be required to provide the necessary heat input. The new reboiler will require an additional 20,000 pounds an hour of steam. The steam is to be produced from existing boilers. No modifications will be required to the existing boilers. The incremental steam can be produced without exceeding any current permit limits on the boilers.	The current interpretation of the applicability test (which compares actual emissions to potential emission increases) triggers Prevention of Significant Deterioration (PSD) and New Source Review (NSR) thresholds. This is a time sensitive project that requires a unit shutdown to implement the project, and as such, a PSD/NSR permit cannot likely be obtained promptly to take advantage of a planned turnaround. Permit preparation is estimated to take up to 2 months, while permit review at the Agency will take upwards of one year to complete. In addition, costly pollution controls may need to be installed on the boilers in order to meet the requirements of PSD/NSR regulations. Though the steam can be produced from the existing boilers within current operating permit limitations, recent regulatory initiatives associated with PSD and NSR create hurdles that cannot be overcome in the timeframe needed to make this project attractive from an economic standpoint.	Foregone production of clean fuels. 10,000 – 12,000 B/D of RFG supply lost or delayed.
8. A refinery could use a new, higher activity catalyst in a light ends unit to produce more lube oil blend stock.	The project was rejected because the resulting incremental sulfur dioxide emissions from the refinery would exceed the significance level for triggering PSD review.	Foregone increase in refinery capacity.
9. A propane deasphalting unit was not expanded due to PSD for sulfur dioxide	The project was rejected because of the current interpretation of NSR, requiring a comparison of pre-change actual emissions to post-change potential emissions.	Additional gasoline and diesel fuel would have resulted if the investment were made. Propane deasphalting yields FCCU and coker feed, which is converted in part to gasoline and diesel fuel.
10. A coker unit could have been expanded by increasing coke drum capacity. Additional gasoline and diesel fuel would have resulted from the expansion.	The capacity expansion project was rejected because of the current interpretation of NSR (actual to potential test). Instead, the drum was replaced in kind, because drum expansion would have been a PSD issue for sulfur dioxide.	Foregone increase in refinery capacity.
11. A refinery could have produced more diesel fuel from coker light gas oil by re-commissioning an inactive hydrotreater.	The project was dropped due to the PSD significance level for sulfur dioxide (using the actual to potential test).	Foregone increase in refinery capacity.

Attachment 1: New Source Review Examples

12. A FCC is air blower limited. If the refinery could add more air to the FCC, it could run more feedstock and make more gasoline and less diesel.	Project was not done since it could increase emissions, and would require PSD permit review (using the actual to potential emissions test).	Foregone increase in refinery capacity.
13. A facility would like to change the FCC riser design to allow better catalyst/feed mixing, which would result in more gasoline production.	According to the current interpretation of NSR, this would be a change in the "method of operation" under PSD. The project would not increase emissions at the FCC and would lower emissions from diesel loading, but would likely increase emissions from the gasoline loading dock. Analysis has not been done yet to show if increase would be significant (i.e. > 40 tons/yr.). However using EPA's reported view that actual emissions must be compared to potential emissions, the project would trigger PSD since the facility is under the permit cap limit by less than 40 tons/yr. The project if completed would not cause the facility to have any problems staying in compliance with its state permit facility cap for VOC, NOx, SOx or any other pollutant.	Foregone increase in refinery capacity and fuel supply.
14. A refinery conducted a review of expanding the alkylation capacity to increase gasoline production.	It was determined that due to NOx increases and PSD issues associated with the current interpretation of NSR that the facility would not make the investment.	Additional gasoline production was foregone. Alkylate is a key blendstock for cleaner, lower sulfur gasoline.
15. Tubes in the depropanizer reboiler furnace failed. The resulting fire destroyed the remaining tubes, and the unit was shut down causing a loss of gasoline production at the plant. New tubes were expedited, and the unit was repaired and back in service in two weeks, minimizing loss of gasoline production.	Today, using EPA's Detroit Edison 24-factor test (EPA letter to Detroit Edison), the unit could have triggered PSD review before repairs. Actual emissions from the last two years were more than 40 tons/yr. under the permitted limit; therefore, using the actual to potential test a PSD permit could have been required, taking 5-18 months to obtain, and gasoline supply would have been limited until the permit was obtained and the depropanizer reboiler furnace put back into service	If PSD review had been undertaken, gasoline production would have been curtailed.
16. New catalyst was put in the reformer during a turnaround. The new catalyst lasts longer, requires less frequent changes, and hence gasoline production is increased.	Today, under the Detroit Edison 24-factor test the catalyst change-out could trigger a PSD review, and due to actuals versus potentials, a PSD permit could be required to change the catalyst	If PSD review had been undertaken, gasoline production would have been curtailed.

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17. In 1981 a company which operates a refinery and lube oil plant received a permit from the state DNR. The permit covered the construction of a delayed coker and a hydrocracker, and energy conservation and improvement projects. After the construction was complete there would be a net decrease in emissions of SO2, NOx, TSP, CO and HC from the refinery and lube plant taken as a whole. The permit established the emissions from the lube plant and refinery, after construction, as an overall emission limitation. As long as the air emissions did not exceed the overall limitation, the company had the flexibility to operate the plant as needed to meet market demand for product. Through this permit, the company was committed to not increasing its overall emissions beyond the level of 1977.	This year EPA issued a NOV for the modifications at the facility. It ignored the 1981 permit and claimed the modifications violated the new source, PSD requirements. Federal courts have held that the Clean Air Act does not authorize collateral attack by EPA on state-issued permits. United States v. AM General Corp., 34 F. 3d 472 (7th Cir. 1994); United States v. Solar Turbines, 732 F. Supp. 535 (M.D. Pa. 1989).	Enforcement action by EPA on an existing permit. This permit meets the goal of PSD – it prevents deterioration of air quality. EPA has included a similar provision in its recent consent decree with Marathon Ashland.
18. A mid-sized refinery (~ 50,000 BPD) was closed in late 1999. As background, this facility was included in the purchase of a refining and marketing company in 1997. At the time of the purchase, this facility was under enforcement by EPA and the Department of Justice for past operational NSR issues.	As part of the enforcement action, the allegations included potential historic triggers of NSR using EPA's current NSR interpretations. Improvements in the facility's operation were immediately instigated for compliance and business viability. To settle the enforcement with respect to NSR issues, the company considered and discussed with EPA and the Department of Justice injunctive relief that would have involved significant capital (greater than $30 million) to install BACT and other pollution control equipment within the facility. After its acquisition and during the negotiations with EPA and the Department of Justice, this refinery had marginal economics due to market conditions, and investment return requirements dictated that minimal new capital be spent on the facility. With the already marginal economics for the facility, the addition of **non-return** capital projects to satisfy NSR decreased the economic viability of the facility.	Loss of 50,000 BPD of refining capacity because of EPA's reinterpretation of NSR.

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19. Burners were recently changed out in the crude unit furnace. This was economically justified based upon a new type of low NOx, high efficiency burner utilizing less fuel to maintain the same heat load.	Under some versions of EPA's interpretations, since the burners were not exactly the same as the ones taken out, the project could have been subject to PSD review. Using this viewpoint, a PSD permit could be required to lower emissions and save energy.	If PSD review had been undertaken, gasoline production would have been curtailed. If the project had not been done, an energy efficiency gain and NOx reduction would not have been realized.
20. While preparing to permit a process unit expansion, the refinery staff fully evaluated the project emissions and prepared a draft permit application with a NSR/PSD analysis. However, after presenting the draft application for a pre-submission review, the state agency introduced a new approach for determining project-related emissions, based on recent EPA guidance on how to evaluate "debottlenecking" projects.	As a result, the staff had to completely re-start the entire permitting process and evaluate potential downstream emission increases. The new "debottlenecking" interpretation added three months to the permitting process. In addition, the refinery had to accept more restrictive emission limits for downstream units, even though they were not physically modified.	Refinery capacity increase delayed.
21. Refinery staff wanted to increase the operating pressure within a process unit by replacing pressure relief valves. This action was not expected to increase emissions above the levels authorized in the current PSD permit nor increase process unit throughput above the maximum represented in the application. No shutdown was necessary, and the job was expected to only take 3-4 days. However, given the uncertainty around whether this would be a regulated physical change, the refiner decided to request a determination through the state agency.	Ultimately, the refiner never actually received a PSD determination, but ended up looking back at the last permit amendment and determined that the pressure relief valve replacements could be authorized as part of the previous PSD expansion.	Project delayed by 4 months.

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22. In 1998, a refiner began working on a 200,000 gallon per day expansion of its FCCU. Most of this expansion would result in the production of gasoline blending components. An advanced technology-scrubbing device had been installed on the FCCU in 1994. The permit limits established in 1994 were based on vendor guarantees since the technology was new to the United States. Subsequent testing indicated that the control device performed adequately. The unit, as of the 1994 installation, was equipped with continuous emission monitors to measure NOx, SOx and CO. The permit analysis for the expansion indicated that the increase in emissions based on the past actual to future potential calculation method would be significant even though the actual increase in emissions based on past actual to future actual were less than significant. Proposed reductions in permitted values did not bring the PSD calculated emission increases to be less than significant. A PSD draft permit was submitted to the state permitting agency in early 1999. Through discussions with the state permitting agency, the netting analysis was modified and updated. A modeling protocol was submitted and based on preliminary analysis, other changes were proposed in the refinery including reducing NOx emissions from other sources and changing stack locations and heights. As the permit review lengthened, the analysis was changed to reflect changes in the contemporaneous period. The state permitting agency requested additional information on the BACT analysis.	The application was withdrawn in July 2001, because of concerns about aggregation with upcoming clean fuels projects, and that even with approval, the modifications could no longer be accomplished during the 2001 FCCU turnaround. Since turnarounds on the FCCU occur only once every four years, this project is now rescheduled to be coordinated with the clean fuels project down time. The PSD and non-attainment NSR analysis will reflect that this FCCU expansion is part of the clean fuels project.	The difficulties in determining debottlenecking and aggregation issues have resulted in the long delay of a project that could have put more gasoline into the marketplace during the summers of 2001, 2002 and 2003. Since the actual emission increases would have been negligible, there was no benefit to the environment associated with delaying this project.

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23. A refinery applied for a permit to install some equipment that would improve the quality and volume of its gasoline supply. Though there was a small increase in overall facility emissions associated with this project, there was a decrease in air emissions per barrel of product. The project required only a minor NSR permit; however, it ended up taking 11 months from permit submission to receipt of the permit.	As a result of the permitting delays, the project, though it could be constructed, could not be tied in to the rest of the process unit during the available turnaround window. The equipment sat un-utilized for approximately 7 months, until the next window of opportunity opened for tie-in of the equipment into the rest of the process.	Gasoline supply foregone.
24. A refiner has found that the time required to complete the NSR permit process has been increasing. In order to anticipate future growth the refiner wrote a 1998 PSD permit application to cover projects that spanned a three-year period. Although the PSD permit has expired, the local air agency is still trying to rewrite the permit to look like what was actually constructed at the refinery. Meanwhile the facility's Title V operating permit application, the most recent revision of which was submitted August 2000, sits waiting on the agency shelf. Currently the facility has four permits under review. Given this situation, by the time the refinery obtains its permits to start construction of units to supply low sulfur fuels the facility will be unable to complete the construction in time to meet the EPA mandate. Some of the problem is due to an under-staffed local agency, and some is due to the reinterpretation of the regulations by EPA, which creates an atmosphere of uncertainty at the local agency.	Reinterpretation of the NSR regulations has caused a slowdown in processing permit applications. Thus the NSR permitting system is not designed for the fast pace of change required by current regulations and growth in the refining industry.	Supply of clean fuels delayed.

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25.

In this example, equipment upgrades can cause actual emissions to increase slightly; however, these actual increases are below NSR permitting thresholds. Unfortunately, the New Source Review reinterpretation compares pre-upgrade actual emissions to post-upgrade potential emissions. The fabricated "phantom emissions" increase may be large enough to trip the NSR permitting threshold. NSR permitting requirements delay the approval process and increase project costs, including achieving emissions offsets elsewhere, to a point where the equipment upgrade may be abandoned altogether. **Result: Capacity increase foregone.**

EXAMPLE: An air blower on a gasoline production unit is approaching the end of its useful life. For maintenance of capacity and reliability reasons, the blower will be replaced. Two options are available: 1) Replace the blower in kind with no capacity increase; or 2) Replace the blower with a slightly larger blower (+5% capacity) since the blower is the piece of equipment that is limiting the gasoline production unit capacity.

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: **Refiner would calculate the emissions increase from the 5% capacity increase by comparing actual emissions before the blower replacement to the calculated actual emissions after the replacement.**	• Emissions Increase: Refiner must calculate the emissions increase from the 5% capacity increase by comparing actual emissions before the blower replacement to **the currently permitted (potential) emissions which are typically higher than actual emissions.** This significantly increases the calculated emissions increase and significantly misstates the actual emissions increase from the blower replacement, i.e., creates a fabricated "phantom emissions" increase.
• Permitting Requirement. Emissions increase is below the threshold that requires NSR permitting. Refiner obtains a non-NSR permit from the state permitting agency, requiring 1-3 months to obtain the permit.	• Permitting Requirement. **The "phantom" emissions increase is large enough to trip the NSR permitting threshold**. Refiner must obtain a NSR permit requiring 6-18 months and to do so must generate emissions offsets elsewhere in the refinery.
• Project Timing/Cost. Straightforward. Project is economic and can be done in a timely fashion.	• Project Timing/Cost. Project cost is now significantly increased since emissions offsets must be generated to offset the "phantom" emissions increase. Also, project installation would be significantly delayed since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with the higher capacity blower to expand the capacity of the catalytic cracking unit since it is an attractive investment and generates only a small real emissions increase.	• Likely Investment Decision: Replace the blower without the capacity increase. **The additional costs of the emissions offsets to the "phantom" emissions increase may render the project uneconomic.** In the unlikely event that the investment would continue to be economic, its installation would be significantly delayed due to NSR permitting requirements.

Attachment 1: New Source Review Examples

26.

In this example, a routine equipment replacement may improve gasoline production by 1,000 barrels per day with only minor increased actual emissions. Unfortunately, the NSR reinterpretation redefines the definition of "routine" so narrowly it excludes virtually every act of maintenance or replacement as "routine". Under the NSR reinterpretation, a decision may be made to replace worn out equipment with less technically capable parts in order not to trigger delays and expenses associated with the NSR permitting process. **Result: Gasoline production increase foregone.**

- **EXAMPLE: A gasoline production unit is down for maintenance just prior to the summer motor gasoline season. Old feed nozzles can be replaced with new generation nozzles that allow the refinery to produce gasoline more efficiently and increase production by 1000 bbls/day to meet summer demands, without increasing oil inputs to the unit.**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: **Refiner would consider periodic repair or replacement of old nozzles with new generation nozzles within the scope of the NSR RMRR exclusion.** Nozzles are normally replaced every 5-10 years as they wear out. Yield is improved, without any increase in unit capacity and only a minor emissions increase from the nozzle replacement. **Unit continues to operate 5% below its permitted emission limit.**	• Emissions Increase: **EPA has narrowed its interpretation of the routine maintenance, repair and replacement exemption. EPA would say the Refiner is subject to NSR, since the replacement is infrequent, high cost and increases yield.** EPA would require the Refiner to compare past actual emissions before the nozzle replacement to the currently permitted (potential) emissions, which are 5% higher than actual emissions. This significantly increases the calculated emissions and significantly misstates the actual emissions increase from the nozzle replacement, i.e., creates a fabricated "phantom" emissions increase.
• Permitting Requirement. Replacements not subject to NSR review. Meets standard for RMRR due to "nature, extent, purpose, frequency and cost of the work, within a particular industrial sector. If required, refiner obtains any non-NSR permits from the state permitting agency, requiring 1-3 months.	• Permitting Requirement. **The "phantom" emissions increase is large enough to trip the NSR PSD permitting threshold.** The refiner will need to either generate emission offsets, or obtain a NSR permit and install additional emission controls.
• Project Timing/Cost. Straightforward. Project is economic and can be done in a timely fashion.	• Project Timing/Cost Project cost is now significantly increased to address NSR requirements and offset the "fabricated" emissions increase. Also, project installation would be significantly delayed 6-18 months since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with the nozzle replacement to increase motor gasoline yield. It is an attractive investment and generates only a small real emissions increase.	• Likely Investment Decision: Refiner must proceed with some nozzle replacement or shutdown. Costs of doing traditional RMRR has increased substantially and will be delayed by the NSR process. Refiner may well decide to replace nozzle with old generation type, forgoing the gasoline production increase.

Attachment 1: New Source Review Examples

27.

In this example, three unrelated projects under consideration may each increase emissions less than NSR permitting thresholds. Unfortunately, the current New Source Review reinterpretation assumes projects undertaken within a "short time" to be associated and requires they be aggregated for NSR purposes. Previously, separate projects were not to be aggregated *unless* the decision to separate projects into smaller projects was made to circumvent NSR requirements. In this example, the capacity project may be abandoned, regardless of whether or not the other two projects are ever undertaken, simply because NSR permitting would increase costs to such a point that it became uneconomic. **Result: Gasoline production and energy efficiency improvements foregone.**

- **EXAMPLE: A refiner identifies 3 separate and unrelated potential coker unit projects; some of which directly increase motor gasoline production. A capacity project (larger feed pump and valve) can be installed immediately to increase production 500 bbl/day. An energy efficiency project (new furnace convection section) can be installed in 2-3 years to save 50MBTU/Hr which can also increase production by about 500 bbl/day. A safety project (to install an automatic coker drum opening system) can be completed during the next 4 years which could also increase capacity by 500 bbl/day.**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: The projects are totally independent, that is, each may or may not be approved depending upon its own merits over the next 1-4 years. None of 500bbl/day steps, if implemented, are significant for NSR.	• Emissions Increase: **EPA now takes the position that projects a facility "Could Have Reasonably Known About" must be aggregated for emission calculation purposes and permitting.** With this reinterpretation, emissions from three potential /separate projects, must be aggregated for NSR, making the first project subject to NSR permitting even though the later projects may never be constructed.
• Permitting Requirement. The Refiner treats the projects as individual projects. **Emissions increases from each project are not enough to require NSR permitting. If required, refiner obtains any non-NSR permits from the state permitting agency, requiring 1-3 months, when and if a decision is made to proceed with each project.**	• Permitting Requirement. The "aggregated" emissions increase is large enough to trip the NSR permitting threshold. Refiner will need to either generate emission offsets or obtain a NSR permit and install additional emission controls.
• Project Timing/Cost. Straightforward. If projects are economic, they will be done in a timely fashion.	• Project Timing/Cost: Project cost is now significantly increased to address NSR requirements and offset the "aggregated" emissions increase. Also, project installation would be significantly delayed 6-18 months since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with the separate coker projects if economics continue to be attractive	• Likely Investment Decision: Additional costs of the emissions offsets and permitting would likely render some or all the projects uneconomic. In particular, it will be much more difficult to justify the first of the projects since it incurs additional costs for projects that may not be installed in the future.

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28.

In this example, a routine equipment replacement may significantly decrease emissions. Unfortunately, the NSR reinterpretation redefines the definition of "routine" so narrowly it excludes virtually every act of maintenance or replacement as "routine". Under the NSR reinterpretation, a decision may be made to replace worn out equipment with less technically capable parts in order not to trigger delays and expenses associated with the NSR permitting process. **Result: Air quality improvement delayed or foregone.**

- **Example: The cyclones on a gasoline production unit are approaching the end of their useful life. These cyclones capture and return catalyst to the unit, helping to reduce particulate emissions. For maintenance of capacity and reliability, the cyclones will be replaced with a new design, with 25% higher particulate matter (PM) removal efficiency. The unit is operating at ~95% of its emission permit limit (typical scenario).**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: Refiner considers the cyclone replacement to be RMRR. **Cyclones are typically replaced every 10 years, typical cost $5-10M. Replacement results in a decrease in actual particulate emissions due to more efficient cyclones.**	• Emissions Increase: **EPA has narrowed its interpretation of the routine maintenance, repair and replacement exemption. EPA would say the Refiner is subject to NSR, since the cyclone replacement is infrequent and high cost.** EPA would require the Refiner to compare past actual emissions before the replacement to the currently permitted (potential) emissions. This significantly increases the calculated emissions and significantly misstates the actual emissions increase from the cyclone replacement, i.e., **creates a "phantom" emissions increase when an actual emission reduction will be realized.**
• Permitting Requirement. Straightforward. NSR thresholds are not triggered. If required, Refiner obtains a non-NSR permit from the State permitting agency, requiring 1-3 months.	• Permitting Requirement. The "phantom" emissions increase is large enough to trip the NSR permitting threshold. Refiner will need to either generate emission offsets, or obtain a NSR permit and install additional controls.
• Project Timing/Cost. Straightforward. Project is justified and can be done in a timely fashion.	• Project Timing/Cost. Project cost is now significantly increased to address NSR requirements and offset the "fabricated" emissions increase. Also, project installation would be significantly delayed 6-18 months due to NSR permitting requirements.
• Likely Investment Decision: Proceed with the cyclone replacement as normal routine maintenance, repair and replacement.	• Likely Investment Decision: Refiner must proceed with the cyclone replacement or shutdown. However, costs of doing traditional RMRR has increased substantially and been **significantly delayed by the NSR process.**

Attachment 1: New Source Review Examples

29.

In this example, equipment upgrades do not cause any actual emissions increase. Unfortunately, the New Source Review reinterpretation compares pre-upgrade actual emissions to post-upgrade potential emissions. The "fabricated emissions" increase may be large enough to trip the NSR permitting threshold. NSR permitting requirements delay the approval process and increase project costs, including achieving emissions offsets elsewhere, to a point where the equipment upgrade may be abandoned altogether. **Result: Gasoline production increase and air quality improvement delayed or foregone.**

- **EXAMPLE: A refinery has a crude processing unit operating below its NOx permitted level of 400 tons per year (tpy). The Refiner has the option to implement an energy efficiency project that results in a come-along capacity increase while not increasing emissions (emission reductions from the efficiency projects offset the come-along emissions from the capacity increase). The EPA current position to require Refiners to compare past actual to future potential (permitted) emissions creates large "fabricated" emission increases, that must be accounted for, if a physical change is made.**

	Past Actual	Future Actual	Permit	Actual Increase (Past Actual vs. Future Actual	Fabricated Increase (Past Actual vs. Potential)
Crude Unit (NOx tpy emissions)	280	280	400	+ 0	+120

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: Refiner would calculate the change in past actual emissions to future actual emissions for the minor energy efficiency project and come-along capacity increase. The net actual emission increase is zero. The efficiency project increases production with no increase in emissions.	• Emissions Increase: EPA current position is that a Refiner must calculate the emissions increase from the efficiency projects by comparing past actual emissions to the currently permitted (potential) emissions, which are higher than actual emissions. Practical impact is that any modification, including emission reduction projects, can result in a "fabricated" emissions increase.
• Permitting Requirement: No increase in emissions. NSR thresholds are not triggered. If required, refiner obtains any non-NSR permits from the state permitting agency, requiring 1-3 months.	• Permitting Requirement: The "fabricated" emissions increase is large enough to trip the NSR permitting threshold. Refiner must either generate emission offsets, or obtain NSR permit and install additional emission controls.
• Project Timing/Cost: Straightforward. Project is economic and can be done in a timely fashion.	• Project Timing/Cost: Project cost is now significantly increased to address NSR requirements and to offset the "fabricated" emission increase. Also, project installation would be significantly delayed 6-18 months since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with the energy efficiency project.	• Likely Investment Decision: The additional costs of the emission offsets to the "fabricated" emissions and permitting would likely render the efficiency project uneconomic. Refiner may well decide to forego the gasoline production increase.

Attachment 1: New Source Review Examples

30.

In this example, equipment upgrades cause decreased future actual emissions and do not expand capacity. Unfortunately, the New Source Review reinterpretation compares pre-upgrade actual emissions to post-upgrade potential emissions (even though capacity remains unchanged). The "fabricated emissions" increase may be large enough to trip the NSR permitting threshold. NSR permitting requirements delay the approval process and increase project costs, including achieving emissions offsets elsewhere, to a point where the equipment upgrade may be abandoned altogether. **Result: Energy efficiency and air quality improvement foregone.**

- **EXAMPLE: This project adds tubes to a furnace on a crude processing unit for a 5% improvement in fuel efficiency. The furnace is running at 80% of its permit emission rate (typical scenario). Current actual NOx emissions are 35tpy compared to a permit level of 45tpy. Future actual emissions would decrease to 32tpy. No unit capacity increase will be realized since the unit is not limited by the furnace capacity. (Refinery is located in a severe ozone non-attainment area).**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Decrease: Refiner must calculate the emissions increase by comparing past actual emissions to future actual emissions, after the new tubes are installed. Past actual to future actual: 35 --> 32 tpy = 3 tpy emissions decrease due to improved furnace efficiency and lower fuel gas firing rate.	• Emissions Increase: Refiner must calculate the emissions increase from the efficiency project by comparing past actual emissions to the currently permitted (potential) emissions, which are higher than actual emissions. This significantly increases the calculated emissions and subsequently misstates the actual emissions from the fuel efficiency project, i.e. creates a "fabricated" emission increase when an actual emission reduction will be realized. Past Actual to Future Potential: 35 --> 45 tpy = 10tpy "fabricated" emissions increase.
• Permitting Requirement: No emission increase so the project would not require NSR permitting. No permitting, no offsets.	• Permitting Requirement: The "fabricated" emissions increase is large enough to trip the non-attainment NSR permitting threshold (5 tpy per State SIP for severe ozone attainment areas). Refiner must obtain a non-attainment NSR permit and to do so must install controls to offset "fabricated" NOx increase at 1.3 to 1 ratio. (10 x 1.3 = 13 tpy of offsets for 3 tpy actual emission decrease)
• Project Timing/Cost: Straightforward. Project is economic and can be done in a timely fashion. • Likely Investment Decision: Proceed with project	• Likely Investment Decision: Forego a project which would increase efficiency and reduce emissions.

Attachment 1: New Source Review Examples

31.

In this example, equipment replacement may cause actual emissions to increase slightly; however, these actual increases would be below NSR permitting thresholds. Unfortunately, the New Source Review reinterpretation compares pre-upgrade actual emissions to post-upgrade potential emissions. The fabricated "phantom emissions" increase may be large enough to trip the NSR permitting threshold. NSR permitting requirements delay the approval process and increase project costs, including achieving emissions offsets elsewhere, to a point where the equipment upgrade may be abandoned altogether. **Result: Gasoline production increase delayed or foregone.**

- **EXAMPLE: This project will replace the feed valve to the motor gasoline unit (catalytic cracker), allowing a 2% (4 KBD) increase in gasoline production. No changes are required to the furnaces, which are running at 80% of their permitted limit. Current NOx emissions are 400tpy. Permitted NOx emissions are 500tpy. (Refinery is located in an attainment area for NOx)**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: Refiner would calculate the emissions increase by comparing past actual emissions before the feed valve change to future actual emissions, after the feed valve change. **Past actual to future actual: 400 -->410tpy = 10 tpy emissions increase for increased furnace firing rate** **Permitted emissions: 500 tpy**	• Emissions Increase: **Refiner must calculate emission increase from the 2% capacity increase by comparing past actual emissions to the currently permitted (potential) emissions, which are higher than actual emissions.** This significantly increases the calculated emission increase, and substantially misstates the actual emission increase from the valve replacement, on a unit capable of higher production rates, i.e., creates a "fabricated" emission increase. • Past Actual to Future Potential: 400tpy --> 500tpy = 100tpy "fabricated" emissions increase.
• Permitting Requirement: Emission increase below the NSR emission threshold would not require NSR permitting. No permitting, no offsets.	• Permitting Requirement: The "fabricated" emissions increase is large enough to trip the NSR permitting threshold. Refiner must either generate emission offsets, or obtain a NSR permit and install additional emission controls.
• Project Timing/Cost: Straightforward. Project is economic and can be done in a timely fashion.	• Project Timing/Cost: Project cost is now significantly increased to offset the "fabricated" emission increase. Also, project installation would be significantly delayed 6-18 months since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with project	• Likely Investment Decision: The additional costs of the emission offsets to the "fabricated" emission increases and permitting would likely render the project uneconomic, so the opportunity to quickly increase gasoline production would be passed up.

Attachment 1: New Source Review Examples

32.
In this example, equipment replacement may cause actual emissions to increase slightly; however, these actual increases would be below NSR permitting thresholds. Unfortunately, the New Source Review reinterpretation compares pre-upgrade actual emissions to post-upgrade potential emissions. The "fabricated emissions" increase may be large enough to trip the NSR permitting threshold. NSR permitting requirements delay the approval process and increase project costs, including achieving emissions offsets elsewhere, to a point where the equipment upgrade may be abandoned altogether. **Result: Gasoline production increase foregone.**

- **Example: The furnace tubes at a crude processing unit are approaching the end of their useful life (20-25 years typical). For maintenance of capacity and reliability reasons the tubes will be replaced – two options are available: 1) replace the tubes in-kind with no capacity increase, 2) replace with different tubes (+2% capacity), since the furnace is the piece of equipment that is limiting the crude unit capacity.**

Prior to NSR Reinterpretation	Current - With NSR Reinterpretations
• Emissions Increase: Refiner would calculate the emissions increase from the 2% capacity increase by comparing actual emissions before the tubes replacement to the calculated actual emissions after the replacement.	• Emissions Increase: **Refiner must calculate the emissions increase from the 2% capacity increase by comparing actual emissions before the furnace tube replacement to the currently permitted (potential) emissions which are typically higher than actual emissions.** This significantly increases the calculated emissions increase and significantly misstates the actual emissions increase from the tube replacement, i.e., creates a "phantom" emissions increase.
• Permitting Requirement. Emissions increase is below the threshold that requires NSR permitting. The refiner obtains any non-NSR permits from the state permitting agency, requiring 1-3 months.	• Permitting Requirement. The "phantom" emissions increase is large enough to trip the NSR permitting threshold. Refiner will need to either generate emission offsets, or obtain a NSR permit and install additional emission controls.
• Project Timing/Cost. Straightforward. Project is economic and can be done in a timely fashion.	• Project Timing/Cost. Project cost is now significantly increased since emissions offsets must be generated to offset the "phantom" emissions increase. Also, project installation would be significantly delayed 6-18 months since NSR permitting takes much longer.
• Likely Investment Decision: Proceed with the higher capacity tubes to expand the capacity of the crude unit since it is an attractive investment and generates only a small real emissions increase.	• Likely Investment Decision: Replace the tubes without the capacity increase. **The additional costs of the emissions offsets to the "phantom" emissions increase and permitting would likely render the project uneconomic.** In the unlikely event that the investment would continue to be economic, its installation would be significantly delayed due to NSR permitting requirements.

Attachment 1: New Source Review Examples

Glossary of terms:

FCCU	Fluid Catalytic Cracking Unit -- This is the major gasoline-producing unit in a modern petroleum refinery.
PSD	Prevention of Significant Deterioration (of air quality) -- Required for expansion in a NAAQS attainment area.
NAAQS	National Ambient Air Quality Standards
BACT	Best Available Control Technology -- Control technology required in NAAQS attainment areas for new construction or "modification." BACT is determined on a case-by-case basis considering economic, environmental and energy factors.
LAER	Lowest Achievable Emission Rate -- Control technology required in NAAQS nonattainment areas. LAER is the most stringent emissions rate limitation required in any State Implementation Plan (SIP) or otherwise achievable in practice.
VOC	Volatile Organic Compounds -- Hydrocarbon emissions which are precursors for ozone formation.
NOx	Oxides of Nitrogen -- Formed in the combustion process.
SOx	Oxides of Sulfur -- Principally sulfur dioxide (SO2)
Alkylate	A low sulfur, high octane gasoline component produced by combining olefins (propylene & butylene) with isobutane in an Alkylation Unit. The olefins are a product of the FCCU.
TSP	Total Suspended Particulates
HC	Hydrocarbon
CO	Carbon Monoxide
DNR	Department of Natural Resources
NSPS	New Source Performance Standards

Attachment 1: New Source Review Examples

Attachment 2: New Source Review Potential Impact Examples

	Potential Impact Examples	
EXAMPLE	**RESULTS OF CURRENT INTERPRETATION**	**IMPACT ON CLEAN FUELS, CAPACITY, AND ENERGY EFFICIENCY**
1. At a meeting in March 2001sponsored by the Air and Waste Management Association, several representatives of EPA gave opinions about the need to obtain NSR permits for hypothetical case studies. One example involved replacing a pump that is no longer serviceable. The model replaced is no longer available, so the new pump, while having the same capacity, is made of new materials that will last longer and require less maintenance. The Agency representatives determined that this would be a non-routine activity, and since the unit may have longer run times (because of the new materials), a new source review pre-construction permit would be required. Another example involved the use of "warehouse spare" pumps or compressors. In this case the spare pump or compressor is kept in a warehouse. When the primary pump or compressor is taken out of service for extended maintenance, the warehouse spare is installed. The Agency representatives suggested that the activity would not be routine, and therefore a permit would be required. A third example involved replacing heat exchanger bundles every few years because of plugging. Again, the Agency representatives suggested that the activity would not be routine, and therefore would require a permit.	All of these activities are fairly common occurrences in petroleum refineries and chemical plants. If NSR permits are required for these types of activities (which enable a facility to stay in operation or increase reliability of the refinery), then refineries will be forced to shut down awaiting permits. The problem is that, if an activity is determined to be non-routine, then the facility must determine if there is an increase in emissions. With all of the previous examples there will be no increase in "actual emissions." However, the current interpretation of the rules would require the facility operator to compare pre-change "actual emissions" with post-change "potential emissions" which, in many cases will lead to the conclusion that a pre-construction permit is required.	These examples illustrate a reduction in reliability and a potential for disruption of refinery production.
2. During scheduled maintenance the tubes on the crude unit furnace were inspected and were required to be replaced.	According to recent interpretation by EPA, this routine maintenance and repair would require a PSD permit application. Since PSD permit applications take on average 5-18 months, the refinery, or at least a significant portion of it, would be shutdown for 5-18 months.	Gasoline production would be reduced until the permit is obtained and the furnace is operating.

Attachment 2: New Source Review Potential Impact Examples

3. During construction of a new wet gas scrubber for the FCC, incorrect materials were utilized for the piping. The piping then corroded away and needed to be replaced with improved metallurgy. To meet the replacement in kind requirement (under current reinterpretation of NSR rules) only the original type of piping (subject to significant corrosion) would be allowed as replacement for the failed piping. To replace the piping with improved metallurgy would require a PSD review and PSD permit.	A PSD permit would be required because actual emissions when compared to potential emissions on a FCC are presumed to be greater than 40 tons/yr NOx. The FCC would have to be shut down until the PSD permit was obtained.	Gasoline production would be severely curtailed until the FCC is back in operation.

Attachment 2: New Source Review Potential Impact Examples

4. The Clean Air Act and EPA rules require the use of emissions "offsets" in nonattainment areas. To allow project developers to create and assemble sufficient offsets in advance of projects, many state and local agencies adopt emissions banking and trading systems. All major greenfield energy projects, and many energy projects at existing facilities, purchase "emission reduction credits" (ERC's) certified by state and local agencies as part of their pre-application permit preparation. ERC rules commonly discount ERC's by limiting the amount certified to actual emissions levels (rather than higher levels they previously permitted), imposing distance discount factors and imposing 5-20% "discount ratios." In addition, an unpublished August 26, 1994 memo from John Seitz to David Howekamp (EPA Region 9) entitled, "Response to Request for Guidance on Use of Pre-1990 ERCs and Adjusting for RACT at Time of Use" has recently been used as the basis for further discounting ERCs. In EPA's administrative order in the Borden Chemical case (Petition No. 6-01-1), EPA stated that "[a]s to banked ERCs, this means that the use of ERCs which were surplus some years ago when they were banked, cannot be used as valid offsets if they are no longer surplus at the time of use because of other regulations enacted after the ERCs were banked."	This EPA guidance results in a significant lack of flexibility for industry, since ERCs purchased but not used quickly may no longer be valid or may be discounted when used. This may also result in inequitable treatment within a single area and between areas. If two facilities purchase ERCs at the same time and one facility uses them within a year, but the other keeps them for three years, during which time the rule by which the ERCs were created changes (unrelated to the operations of the second facility), the second facility is put at a competitive disadvantage by the invalidation or discounting of the credits. And where the state or local district has taken no SIP credit for banked reductions, there is no reason to further discount credits at time of use. EPA is on the one hand encouraging flexible approaches and economic incentives and on the other insisting on guidance which is extremely counterproductive to those approaches.	Refining capacity may be foregone.